

Evaluation of the Consumption of Fruits and Vegetables of the Indigenous Community of Kilometro 11, Leticia, Colombia

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Abstract

The main feeding supply from fruit or vegetable in the community of the "Kilometro 11" (Km 11), is produced by the "Chagras": banana, cassava, pineapple, copoazú, paprika, pepper, lemon, yams, corn, tomato, aguaje, granadilla, coconut, cocona, guava, onion, grapefruit, papaya, caimo grape, asai, banana, mango, avocado maraca, lemongrass, araza, breadfruit, cashew and orange, among others, depending on the time of year. The objective was to determine the fruits and vegetables consumption in an indigenous population of the community Km 11, Leticia, Colombia. A survey of food consumption was performed to 28 adult individuals among 18 - 40 years old from the indigenous reservation "Ticuna-Uitoto Km 6 - 11" in Leticia, Colombia. The results have revealed that 60.7% of the sample consumes 400g or more of fruits and vegetables a day; therefore shows that this population is adjusted to the international recommendation of 5 servings of fruits and vegetables a day. This indigenous population has a wide source of natural products; with many of them which have bioactive compounds with antioxidant properties, and also they are rich in fiber, which could influence the health of this indigenous population and represent an alternative to slow the progression of diseases among them; such as, obesity, diabetes and cancer. There must be a broader nutritional diagnosis in the population, in order to incorporate the cultural component on feeding practices, exploring those factors that are affecting the consumption of fruits, vegetables and their effect on these populations.

Keywords: Fruits; Vegetables; Consumption of Foods; Community Indigenous

Introduction

A large number of scientific studies show a positive association between the high consumption of fruits and the prevention of Cardiovascular Diseases (CVD) and Cancer; Based on scientific evidence, the World Health Organization (WHO) and the United Nations Organization for Agriculture (FAO) have issued guidelines and established strategies to promote the consumption of fruits and vegetables [1]. The international recommendation of the WHO and FAO is to consume at least 5 servings of fruits and vegetables a day (between 400 to 600g a day).

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The indigenous population of the Amazon is characterized by its agricultural activities and by having a diet based on indigenous products. In Colombia, the indigenous community Km 11, harvests mainly in Chagras: banana, cassava, pineapple, copoazú, paprika, chili, lemon, yam, corn, tomato, aguaje, granadilla, coconut, cocona, guava, onion, grapefruit, papaya, caima grape, acai, banana, mango, avocado maraca, milpesos, lemongrass, araza, breadfruit, cashew, sapote, and orange, are some of the products grown, which suggests an adequate consumption of fruits and vegetables within this community [2]. Based on the above, it is sought to determine the consumption of fruits and vegetables in an indigenous population of the community Km 11, Leticia, Colombia.

Methodology

It is a descriptive cross-sectional study, carried out in the indigenous community of Km 11, Leticia, Colombia. The study group consisted of 28 individuals between 18 and 40 years old, belonging to the Indigenous Reservation "Ticuna-Uitoto Km. 6 - 11" and who voluntarily agreed to participate in the study. Individuals who did not belong to the community were excluded. All the volunteers selected for the project signed the informed consent.

A survey was applied that included personal data (age, sex, personal history) and eating habits (number of meals and hours, allergies, or intolerance).

Dietary evaluation

The measurement of food consumption was carried out through the semi-quantitative frequency of consumption technique that included 26 foods (fruits and vegetables) native to the Amazon with 5 response items for the frequency of consumption (No consumption, number of times per month, number of times a week, number of times a day), in which the respondent selected a category and indicated the number of times they consume it for that same category. Additionally, a column of the approximate portion consumed was included. The survey contained four complementary questions on the frequency of consumption of fresh or cooked vegetables and the frequency of fresh fruits or natural juices. Each of the questions had 5 answer possibilities (always, usually, sometimes, rarely or never). Practical measurements such as cups, spoons, glasses, a unit or a fruit were used to estimate the portion size.

Statistical analysis

The data collected were stored and analyzed by the statistical package SPSS® for Windows®, version 19.0.

Results

The average age for the study sample was 32.9 years \pm 14.3, being 82.1% female and 17.9% male. Concerning the number of meals they eat per day, the majority of those surveyed, 89.2%, eat the three main meals. No volunteer reported having an allergy or intolerance to fruits or vegetables.

It was found that 60.7% of the population consumes between 400g to 600g, 32.1% less than 400g and 7.2% more than 600mg of fruits and vegetables per day; therefore, it is shown that this sample is adjusted to the recommendations of 5 servings or 600g of fruits and vegetables per day, according to the WHO. In this indigenous population there is a great variety of natural products, many of them with bioactive components and with antioxidant properties and rich in fiber [3], which could have an influence on health and would represent an alternative to delay or prevent cardiovascular diseases, diabetes or cancer.

The fruits and vegetables of the season, most consumed by the indigenous population Kilometer 11, were Aguaje (*Mauritia flexuosa* L), Asai (*Euterpe precatoria* Mart.), Pineapple (*Ananas comosus* L. Merr), Copoazú (*Theobroma grandiflorum* Will), Lulo (*Solanum quitoense*

L), Caimo (*Chrysophyllum cainito* L), Umari (*Poraqueiba sericea* Tul), Cashew (*Anacardium occidentale* L), Pepper or Chili (*Capsicum annum* or *Capsicum baccatum*), dressing vegetables (Tomato, *Solanum lycopersicum*, and Onion, *Allium cepa*) where the higher consumption of fruits in relation to vegetables by this population stands out.

Table 1 shows that the consumption of vegetables in the sample studied is frequent since 67.9% always or usually consume fresh vegetables. Similar behavior is described for cooked vegetables which are recorded frequent consumption with 64.2%. These findings show that for the study group, there is no difference between consuming fresh or cooked vegetables. For the consumption of fruits, the intake is frequent, both fresh and in juices, 64.3% and 50% respectively. Without finding a statistical difference between the forms of intake. However, consuming fresh or whole fruits favors the intake of dietary fiber, which has beneficial health effects when consumed.

Frequency of consumption	Fresh vegetables		Cooked vegetables		Fresh Fruits		Fruits in Juice	
	n = 28	%	n = 28	%	n = 28	%	n = 28	%
Always	11	39,3	8	28,6	18	64,3	14	50
Usually	8	28,6	10	35,6	7	25	10	35,6
Sometimes	6	21,3	8	28,6	3	10,7	2	7,2
Rarely	2	7,2	1	3,6	--	--	2	7,2
Never	1	3,6	1	3,6	--	--	--	--
Total	28	100	28	100	28	100	28	100

Table 1: Frequency of consumption of fruits and vegetables according to the form of intake.

Similar studies carried out in an indigenous population of Venezuela, the Waraos, a rural community of Yakariken in the forest of the Delta Amacuro State, which presented a high consumption of fruits and vegetables of the time since their main subsistence activity is pickers of fruits and vegetables. Wild vegetables and game have cultivated their customs through a good relationship with their habitat and the low incidence of metabolic syndrome and cardiovascular diseases that is a characteristic of a non-industrialized society. This allows demonstrating that habitat and man define the incidence of diseases, probably due to the relationship between the environment and genes [4,5].

Conclusion

Among the sample studied, the consumption of fruits and vegetables is frequent, however, fruits are the most consumed and therefore those with the greatest influence in the contribution of antioxidants and bioactive components that could provide a protective and preventive effect for cardiovascular events and cancer.

A broader nutritional diagnosis should be carried out in the population, which incorporates the cultural component based on research on food practices, exploring the population factors that affect the consumption of fruits and vegetables and their effect on these populations.

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